Farhan Damani

Education

Sept. 2017-May 2019
Masters, Computer Science, *Princeton University*.
GPA: 3.68/4.0
Relevant coursework: Foundations of Probabilistic Modeling, Statistical Optimization and Reinforcement Learning, Advanced Topics in theoretical machine learning, Computational Complexity

Sept. 2012–May 2017
BS, Computer Science, *Johns Hopkins University*.
Major GPA: 3.87/4.0

GRE: Quantitative 170/170 (97th percentile); Verbal 159/170 (82nd percentile); Writing 5.5/6 (98th percentile)

Relevant coursework: Probabilistic Graphical Models, Unsupervised Learning, Linear and Nonlinear Optimization, Probability and Statistics

Research/Work Experience

Dr. Abby Doyle, Princeton Chemistry Department

Sept. 2019 - present
Machine learning for reaction condition design.

Simulations & Modeling Sciences, Pfizer R&D

May. 2019 - present
Consultant—machine learning for drug discovery.

Teaching Assistant Introduction to Machine learning

Sept. 2018 - May 2019
Taught a weekly precept and held office hours.

Dr. Jonathan Pillow, Princeton Neuroscience Institute

Aug. 2017 - May 2019
probabilistic models; behaviorial neuroscience.

Dr. Ryan Adams, Princeton Department of Computer Science

Aug. 2017 - May 2019
probabilistic modeling, behaviorial neuroscience; automated molecular design; generative models.

Dr. Alexis Battle, Johns Hopkins University Department of Computer Science

Jan. 2015 - Aug. 2017
Developed a Bayesian hierarchical model to understand the impact of genetic variation on molecular traits.

Prosthetics team at Applied Physics Lab, Laurel, MD

June 2014- Jan. 2015	Implemented an open source grasp planner to determine stable grasp points for the Modular Prosthetic Limb (MPL). Also worked on implementing a grasp quality metric using force sensors to compare the MPL to other low dexterity robotic manipulators.

Presentations

2020	Black Box Recursive Translations for Molecular Optimization. MIT AI Drug Discovery & Manufacturing, Cambridge, MA (poster)
2019	Molecular Optimization with Recursive Sequence-to-Sequence Inference. Invited talk at Pfizer R&D, Cambridge, MA.
2019	Tutorial on Bayesian Optimization for drug discovery. Invited talk at Pfizer R&D, NYC.
2019	Damani, F. et. al. Inferring animal learning rules from behavior with probabilistic models. Computational and Systems Neuroscience (COSYNE). Lisbon, Portugal. (poster)
2016	Damani F., et. al. *Predicting tissue-specific effects of rare genetic variants.* Biological Data Science at Cold Spring Harbor Laboratory. 2016 (talk).
2016	Invited talk at Princeton University.
2016	Damani F., et al. *Exploring effects of rare non-coding variants.* Symposium on Advances in Genomics, Epidemiology, and Statistics. University of Pennsylvania Perelman School of Medicine. Philadelphia, PA. (poster).

Publications

Preprints.

2019	Damani, F., Sresht, V., Ra, S. *Black Box Recursive Translations for Molecular Optimization.* arXiv. `https://arxiv.org/abs/1912.10156`
2019	Damani, F., Yates, J., Scholl, B., Pillow, J. *Variational Bayesian decoding of high-dimensional neural activity with Gaussian process priors.*
2016	Damani F., Kim Y., Li X., Tsang E., Davis J., Chiang C., Zappala Z., Strober B., Scott A., Hall I., GTEx Consortium, Montgomery S., Battle A. *A framework for predicting tissue-specific effects of rare genetic variants.* In preparation. Manuscript available here: `http://goo.gl/85qLFj`

In press.

2019	Seff, A., Zhou, W., Damani, F., Doyle, A., Adams, R.P. *Discrete Object Generation with Reversible Inductive Construction.* Neural Information Processing Systems 2019.
2019	Damani, F., Roy, N., Akrami, A., Brody, C., Adams, R.P., Pillow, J.W. *Inferring animal learning rules from behavior with probabilistic models.* Computational and Systems Neuroscience (Cosyne) Extended Abstract.
2016	Li X., Kim Y., Tsang E., Davis J., Damani F., Chiang C., Zappala Z., Strober B., Scott A., Ganna A., Merker J., GTEx Consortium, Battle A., Montgomery S. *The impact of rare variation on gene expression across tissues.* Nature, 2017.

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2016 Chiang C., Scott A., Davis J., Tsang E., Li X., Kim Y., <u>Damani F.</u>, Ganel L., GTEx Consortium, Montgomery S., Battle A., Conrad D., Hall I. *The impact of structural variation on gene expression. Nature Genetics, 2017.*

Awards

2017 National Science Foundation Graduate Research Fellowship Honorable Mention

2015 Joseph C. Pistritto Fellowship recipient (Johns Hopkins Department of Computer Science research fellowship)

2016 Acheson J. Duncan Fund recipient (Johns Hopkins Department of Applied Mathematics and Statistics award to support research projects in statistics.)

Media

2019 Feature on molecular discovery work with Pfizer R&D `https://www.getscience.com/disruptive-science/ni-hao-better-potential-medicines-how-language-translation-technology-being`

2014 Johns Hopkins Engineering Magazine feature for work on prosthetics development and artificial intelligence as a summer intern and part-time employee in fall 2014 at the Applied Physics Lab. See `http://engineering.jhu.edu/magazine/2014/12/spured-get-better-grasp/#.VJmOo8AB0U` for details.

2014 One-on-one interview for work in prosthetics. Details here `https://rising.jhu.edu/spur`.

Activites

2018-2019 Teaching Assistant for Introduction to Machine Learning (fall and spring).

2014-2015 Founder of the first intern think tank at the Applied Physics Lab. Led weekly meetings for 300+ interns to discuss engineering problems of interest and potential solutions.

2012-2014 Journalist for Ismaili USA Magazine, most widely distributed Muslim magazine in the country (over 500,000 subscribers).

References

Dr. Jonathan Pillow; Princeton Neuroscience Institute

Dr. Alexis Battle; Johns Hopkins Computer Science

Dr. Ryan Adams; Princeton Computer Science